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Research Activities

of THE BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING.

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PLANT INDUSTRY STATION, BELTSVILLE, MD. July 1952

Appropriations for 1953

The Bureau received $11,614,000 in the Agricultural Act approved July 5. While less than the amount - $11,696,000 - approved by the Budget Bureau, the 1953 appropriation is larger than that of last year. The 1952 figure - $11,453,730 - included a supplemental appropriation for pay increases and a non-recurring item - $275,000 - for construction of the new citrus laboratory at Orlando, Fla.

Increases granted by Congress for the coming year include: $33,000 for improvement of forage production in the South; $40,000 for research on halogeton and other noxious weeds; $77,500 for studies on black shank disease of tobacco; $37,500 for work on wheat rust, bunt, and wheat stem sawfly; $6,350 for pecan investigations; $175,000 for fertilizer technology and field evaluation; and $30,000 for research on ginning extra-long-staple cotton.

RMA funds for 1953 will be $326,000 as compared with $295,000 this past year. Major increases will go for studies on: the determination of moisture in grain and seed; pallet handling of fruits and vegetables; and the foundation seed program.

An increase of approximately $23,000 for research on strategic and critical agricultural materials will be used for fiber investigations.

The Jensen amendment, which permits filling only one out of each four jobs vacated after July 1 with certain exceptions, and the Ferguson amendment, which requires a 10 percent cut in funds budgeted for travel and certain other items, generally will not affect the Bureau since these amendments do not apply to appropriations for research, for marketing services, or for positions classified as "field."

IN BRIEF

No successor has been named to replace W. M. Myers, who resigned June 30 to become professor and chief of the Division of Agronomy at the University of Minnesota. A member of the staff since 1937, Dr. Myers did outstanding work on the genetics and improvement of grasses and legumes at the U. S. Pasture Laboratory, State College, Pa., before coming to Beltsville as head of the Division of Forage Crops and Diseases in 1949. He had served as director of Field Crops Research for the past year. K. S. Quisenberry, assistant chief, will be responsible for the work until the position is filled.

Wilbur M. Hurst, a Mississippian who joined the Department as a junior agricultural engineer in 1926, succeeds George R. Boyd as head of the Division of Mechanical Processing of Farm Products. Mr. Hurst holds a degree in agriculture from Mississippi State and one in agricultural engineering from Iowa State College. He was leader of fiber flax processing work during World War II and responsible for numerous machine developments that helped modernize this industry in the Pacific Northwest. More recently his work has dealt with the improvement of equipment, plant lay-out, operation and other problems of such rural industries as poultry plants, community canneries, and fruit processing plants. Three engineering devices patented for public use have come out of his research. He is author of more than a score of engineering papers in technical journals and of 15 bulletins and circulars.

Henry A. Jones (VC&D) was awarded an honorary DSc. by the University of Nebraska in June. Dr. Jones is a native of Seward, Nebr., and holds a bachelor's degree from the University. He obtained his doctorate at the University of Chicago. The honorary degree is in recognition of his work as a geneticist - "applying the principles of genetics to vegetable breeding" - his teaching, and his work as a writer.

Anna E. Jenkins, mycologist, has transferred to OFAR to accept a 2-year assignment in Brazil, where she will work with A. A. Bitancourt, director of the Biological Institute at Sao Paulo. Dr. Jenkins and Dr. Bitancourt are editors of the series, "Myriangiales selecti exsiccati," a project initiated in 1938. A New Yorker and a graduate of Cornell, Dr. Jenkins joined the Bureau staff in 1912, has achieved international recognition in her field.

Bureau Chief on Field Trip

On his first stop in a 7-week field trip, Bureau Chief A.H. Moseman spoke on "The Future of Agronomic Research", at the dedication of the new agronomy building of the University of Nebraska, June 26.

"It is the job of administrators of research to try to visualize the problems ahead, to judge our potentialities for meeting these problems, and perhaps more important, to see that support and facilities are available for scientists to work out the answers," Dr. Moseman said, "This new building is a working tool, with offices and laboratories fitted for increased productivity of research and teaching. Research depends also on well-trained scientists with sufficient helping hands and supporting funds to work effectively. The problems facing farmers in the future emphasize the need for all the help possible from agricultural research agencies. We should have the answers before the problems hit our soils or crops on large farm acreages. Today we are not in good position to keep pace with the job.

"For example, it was in 1939 that plant pathologists first found the extremely virulent race 15B of stem rust. In 1950 the widespread epidemic of stem rust of this new race cut durum wheat production by 10 million bushels or 20 million dollars. We were not ready with the resistant varieties we knew we should have had to prevent those losses.

"Why aren't we ready for these situations that drain so heavily from farm income? These are not emergencies. We see many of these problems approaching years in advance.

"A part of the answer ties to the declining trend in scientific personnel in agricultural research. Our Bureau, which perhaps represents the average situation for Federal and State research units, has had a reduction of about 17 percent in the number of research workers in all fields of plant, soil, and engineering research since 1940. In many areas of crop breeding and disease control work the reduction is 25 and 30 percent. Inflated costs have cut the research dollar during the time we should have been increasing our efforts.

"Some folks complain that research goes on and on and it is never done. Some of our research is like that and we do not apologize for it. Plant breeders have turned out new crop varieties for hundreds of years. We must continue to develop new varieties of nearly all crops to meet changing disease, insect, and other production hazards. The 20 million dollars lost from the single season's wheat crop in 1950 would support the research on all wheat diseases by State and Federal research agencies for about 65 years at the present level of operation." (Copies of Dr. Moseman's speech may be obtained from the Information Division.)

Dr. Moseman's itinerary from July 9 through August 2 will enable him to visit Bureau workers stationed at Mandan, N. Dak.; Bozeman, Mont.; Spokane, Pullman, Grand Coulee, Wenatchee, and Prosser, Wash.; Pendleton, Portland, and Corvallis, Oreg.; Twin Falls, Idaho; Ogden, Logan, and Salt Lake City, Utah; and Grand Junction, Gunnison, Fort Collins, and LaSalle, Colo.

So-Called Indicator Plants Cause Problem

Taking a new look at the theory that desert plants--sagebrush, shadscale, and greasewood--can be used to indicate the suitability of soils for agriculture, Milton Fireman and H.E. Hayward (Soils) have come up with interesting findings.

It has been generally believed that sagebrush indicates soils well suited to agriculture, shadscale grows on soils less suited, and greasewood on soils unfavorable to cultivated plants.

In 1949-50 Fireman and Hayward made a study in the Escalente desert to: (1) ascertain relation of vigor, age, and distribution of indicator plants to the physical and chemical characteristics of the soils of their habitats; (2) compare soils occupied by root systems of indicator plants and those in the adjacent interspaces; and (3) determine the relation between the chemical composition of plant parts and differences in soil characteristics.

Their findings show: the pH of saturated soil pastes and soil-water suspensions, particularly the surface soil, are generally higher under shadscale and invariably higher under greasewood than in the adjacent bare areas or under other plants such as sagebrush; the exchangeable sodium percentage of the soil is somewhat higher under shadscale and much higher under greasewood than in the adjacent bare areas or under sagebrush; and the soluble salt content of the soil was appreciably higher under shadscale and greasewood than in adjacent bare soil or under other shrubs. The larger the greasewood plant, the higher the pH, the soluble salt content, and exchangeable sodium percentage as compared with soil in adjacent areas.

Other data suggest that soil characteristics such as pH, soluble salt, exchangeable sodium,and permeability are affected by shadscale and particularly by greasewood although it is not likely that the greasewood affects the exchangeable sodium content of this soil much beyond the crown of the plant.

Crops Vary in Irrigation Needs

Frequent irrigations pay off in potato yields, and are less critical in corn, according to findings reported by O.W. Howe, associate engineer at the Scotts Bluff (Nebr.) Field S tation.

In tests in which the root zone was completely filled with available soil moisture, the highest yields and best quality of potatoes came from plots receiving the most frequent irrigation and having highest plant populations. For example, in 1947, plots receiving 16 irrigations produced 100 bushels more per acre than those irrigated 7 times. Quality also improved. There was a substantial yield increase, less scab and fewer rough potatoes in 24-inch rows than in those more widely spaced. Greatest scab infection occurred in plots irrigated 4 to 6 times. Fertilizer increased yield by as much as 30 bushels per acre under 16 irrigations.

In plots of corn planted in 36-inch rows, 5 irrigations increased yields 10 bushels per acre above 3 irrigations. The increase was 14 bushels an acre in plots treated with commercial fertilizer, 20 bushels on those treated with manure, and 28 bushels on plants treated with manure and a high rate of nitrogen. However, the stalks in this last plot were too slender and weak to be harvested either mechanically or by hand.

New Hardy Mums

Nurserymen have been notified that a limited number of plants of Roza and Overley, new chrysanthemums, are available for propagation.

Intended primarily for outdoor culture in cold climates, the new mums come from breeding and initial selection by A.C. Hildreth, superintendent of the Cheyenne Horticultural Field Station, W.J. Clore, horticulturist at the Irrigation Experiment Station, Prosser, Wash., F.L. Overley, former superintendent of the Tree Fruit Experiment Station, Wenatchee, and A. Van Doren, present superintendent, cooperated in the testing, final selection, and distribution of these varieties in the Pacific Northwest, where they appear to be well adapted.

Both of the new mums are third generation, open-pollinated seedlings of Gold Lace. The plant of Roza is a standard cbushion type, about 16 inches high, somewhat spreading and extremely hardy. The flowers, 1-3/4ths inches in diameter, are a shade between rose and purple. At Cheyenne this variety begins blooming in late July, continues until killed by severe frosts.

The compact plant of Overley is a dwarf cushion, 12 inches high. The flowers are from 2 to 2½ inches in diameter, neat in form, and almost fully double. Normally the color is a lustrous coppery bronze but it is more of a yellow bronze when the flowers open in hot weather. At Cheyenne, Overley begins flowering in late September and continues until the top is killed by severe freezes.

Radioactive Fertilizer Factory

Since mid-January the Bureau has been manufacturing and distributing this year's supply of radioactive phosphatic fertilizers. Total output of the small processing plant will be about one-half ton of fertilizer containing 366 pounds of P_2O_5 and 33 curies of P^{32}. This is being used in 94 field experiments in 26 States, Hawaii, and Puerto Rico.

In the sixth year of cooperative research with radioactive materials, Bureau and State workers will study the response of 18 crops to phosphatic fertilizers. They will study the relation of phosphorus availability to: granulation; time and method of fertilizer application; irrigation; the application of lime, nitrogen, and potassium. They will investigate the utilization of phosphorus from foliar sprays and surface application to sod crops. They will use data from 37 experiments in 19 States in measuring the phosphorus fertility of soils.

2,4-D on Cotton

The first detailed record of the effect of 2,4-D on cotton plants at various stages of development comes from Wayne J. McIlrath, formerly of the Texas Experiment Station, and David R. Ergle (C&OFC&D). They find the seedlings are the most sensitive to minute quantities of the compound, which injures young meristematic tissues, produces malformed leaves and stems. Not all leaf primordia are equally susceptible. Once flowers and bolls reach a certain stage of development they are no longer vulnerable. Seed from plants treated in later stages produced malformed plants even though the parent plants were not injured.

Chlorosis in Citrus Orchards

Walter Reuther and Paul F. Smith (F&NC&D) report evidence that chlorosis--on the increase in mature citrus orchards in Florida--is closely tied in with high levels of copper in acid soils. Their data suggest that the disorder in many instances is caused by an unfavorable balance in the concentration of available heavy materials, particularly copper, in relation to available iron.

In a study of 20 orchards affected with chlorosis, Dr. Reuther and Dr. Smith found the top soil was invariably highly acid with a pH 5.0 or below. An examination of the root systems showed many dead fibrous roots and abnormally dark-colored, stubby, and poorly branched living rootlets. Growth of cover crops was sparse and some weed species were also affected with leaf chlorosis.

Under the practice of heavy fertilization used in many Florida orchards over the past decade, growers have applied enough copper sulfate to add 10 to 25 pounds of copper annually, fungicides to account for an additional 5 to 15 pounds.

The researchers point out that leaves from citrus trees abnormally low in iron show the same symptoms as those grown on calcareous soils.

Increasing Vegetable Seed Yields

Precise information on the influence of spacing, soil moisture, fertilizer, and time of planting on seed production of vegetable crops is coming out of cooperative research with the Western mountain and coastal States.

Leslie R. Hawthorn (VC&D) points out that wide spacing and moderately low soil moisture are important favorable factors in the production of carrot seed. Yields are increased by wide spacing of rows (36 inches as compared with 18 or 9 inches), and light instead of heavy irrigation. In some seasons the plants receiving the least irrigation in these tests yielded nearly 300 pounds of recleaned seed more than those receiving the most soil moisture. Growers in Utah are now advised to let soil moisture reach the permanent wilting percentage to a depth of 2 feet before irrigating. The effects of moisture and spacing are independent.

Onions give higher yields when the rows are narrowly spaced and the plants get high or at least medium soil moisture. Average seed yields in 33- to 36-inch rows are from 300 to 600 pounds an acre. In these studies 9-inch rows and high soil moisture produced yields of nearly 1,800 pounds.

Time of planting is important in lettuce seed production in northern Utah. Lettuce planted between the first and seventh of September at Logan and a week later at Farmington survived most winters, produced a fine crop of marketable heads the following May or June, and a crop of seed in August or September. Seed planted earlier than these dates resulted in plants too big to overwinter. That planted later produced plants too small to survive except when protected by unusually good snow cover. The data show wide differences in seed yields of different strains and indicate that it will be possible to select good types of commercial lettuce that produce high yields of seed.

Supplemental Irrigation Boosts Yields

Impressive results showing how supplemental irrigation enhances other good practices in corn and pasture production in the Southeast are reported by Howard V. Jordan (Soils) and V.C. Harris (WI). They are based on 1951 cooperative tests with the Mississippi Station.

Rainfall during the season -- from April 1 to October 31 -- was 26.73 inches, which is about normal. Distribution through the season was typical in that it meant dry spells at critical periods of crop growth. In 1951 practically no rain fell at State College from April 22 to May 22 and moisture was limited again in August and September. The addition of water boosted yields of both corn and pastures.

A combination of thick plant populations of an adapted hybrid--Dixie 18-- and applications of nitrogen at rates of 60, 120, 180, and 240 pounds an acre, produced corn yields ranging from 59 to 83 bushels an acre. With irrigation, the yields ranged from 61 to 104 bushels an acre.

In another test in which fertilizer was applied at rates of 250 pounds of nitrogen, 60 pounds of phosphate, and 60 pounds of potash an acre, and 2,4-D used to control weeds and grass, average yields of the non-irrigated plots were 71 bushels an acre, of those under irrigation, 93 bushels. Optimum plant population in this experiment appeared to be 16,000 plants an acre.

A 10-acre corn field to which 2.25 inches of water was applied in 2 irrigations averaged 73 bushels an acre. An adjoining field with no irrigation had to be replanted because of poor germination, and produced only half the yields of the irrigated field.

The results indicated that fertilizer was more important than irrigation in boosting pasture yields. A combination of the 2 practices tripled production. Most economical fertilizer for a permanent pasture of Dallis grass, Bermuda grass, and hop clover was an application of 60 pounds of P_2O_5 and 32 pounds of nitrogen an acre after each clipping. Without irrigation this yielded 17,864 pounds of herbage. With water added, it produced 29,865, a 67 percent increase equal to 6 additional tons. Check plots with no fertilizer or irrigation yielded 9,479 tons. Another notable gain from irrigation was increased production during the latter part of the season. Fertilized plots with supplemental irrigation furnished nearly twice as much herbage during September and October as those without irrigation.

Cost of irrigating corn in this location--including fixed annual cost for equipment--was calculated at $28.60 an acre. Labor is an important factor. It takes $4\frac{1}{2}$ man hours an acre to move the sprinkler system used and to set it up in young corn, $6\frac{1}{2}$ hours an acre in tall growing corn.

Virus-Free Mums

Of 147 varieties of breeding lines of chrysanthemums indexed by Phillip A. Brierley (OPC&D) this past year, 34 were discarded for stunt, 15 for mosaic, and 2 for aster yellows infection.

Dr. Brierley used Mistletoe chrysanthemums--Bronze, Golden, Pink, and White--as test plants. They show distinctive symptoms of both mosaic and stunt within 4 to 6 weeks after grafting. Incidentally, Dr. Brierley found that he could overcome masking of stunt symptoms in winter by using higher light intensity.

Reselected healthy stocks permit the breeder to dispense with time-consuming precautions against spread of stunt during handling operations. Clean stocks also remove the hazard of contaminating new seedlings before they can be evaluated. Properly indexed mums are expected to remain virus-free under glass.

Herbarium Growing Rapidly

Andrew Archer and his associates on the staff of the herbarium of the National Arboretum marked a milestone recently when they catalogued the 280,000th specimen. Established in 1934 to serve as a repository for specimens, photographs, and drawings of plants used in horticultural research, the herbarium now ranks among the first 10 herbaria in the United States on the basis of vascular plants. About 20 percent of the specimens are of cultivated plants. These include numerous vouchers of foreign plant introductions, ornamentals, and others of economic importance. In addition to the plants in the working collection, backlog to be catalogued brings the total to more than 470,000. During the past year 30,000 plants were incorporated into the herbarium.

Sprinkler Irrigation and Disease Spread

To what extent will sprinkler irrigation be conducive to fungus and bacterial leaf diseases? Limited observations by J.D Menzies (SMI) at the Irrigation Experiment Station, Prosser, Wash., indicate that:

(1) While sprinkler irrigation can spread bacterial diseases of beans, it is not likely to result in extensive damage in central Washington's dry climate when normal sprinkling schedules are followed.

(2) Sprinkler irrigation could perpetuate a light infection, which might cause serious loss if a heavy rain or hailstorm occurred.

(3) Attempts to produce certified bean seed under sprinkler irrigation will be decidedly risky unless the grower has absolute assurance that he is using disease-free seed for planting stock and is planting on clean land.

Award to Schultz

"To Dr. Eugene S. Schultz, plant pathologist of the U.S. Department of Agriculture in recognition of his noteworthy contribution to understanding and control of major virus and fungus diseases of potatoes and his outstanding research in these fields. His tireless and productive work has resulted in significant advances in scientific potato production."

So reads the plaque awarded to Dr. Schultz by the Maine Potato Industry at a banquet in his honor at Orono, April 2.

His service to agriculture goes back to 1917 when he entered the Bureau as a plant pathologist. He was among the first to focus attention on the fundamental problem of why potatoes appear to "run out," and to trace the cause to virus diseases. He showed that mosaic disease of potatoes was transmitted by aphids and later did much of the work on transmission, variation and control of this disease and others, including leaf roll, net necrosis, spindle tuber, and latent mosaic.

Translating his findings into practical terms he has written bulletins on the production of virus-free seed and developed techniques for testing new potato seedlings for resistance to virus diseases, late blight, black leg, and other diseases. His systematic study of the natural sources of late blight infection revealed the danger of spreading infection from sprouting potatoes in waste piles and demonstrated the need for spraying the potatoes to destroy them.

Dr. Schultz was born May 14, 1884 near Palm, Pa. He received his training in Perkiomen Academy, at the University of Wisconsin (BS, MS) and at Columbia University (PH.D).

NAS Elects Hendricks

Sterling B. Hendricks (Soils) was one of 30 scientists elected to membership in the National Academy of Sciences, April 29. Widely known for his studies in the structure and chemistry of clay minerals, the use of radioisotopes in soil chemistry, and the nature of photoperiodism, Dr. Hendricks has been engaged in USDA research since 1928. He is a native of Texas, holds a BSChE from the University of Arkansas, an MS from Kansas State, and a PhD from California Tech. He received the Hillebrand prize given by the Chemical Society of Washington in 1937, and an award from the Washington Academy of Sciences in 1942, an LLD from Arkansas in 1946.

New Book

Charles E. Kellogg (SS) has kept the needs and interests of a large audience of home gardeners in mind in his new book, "Our Garden Soils," a MacMillan publication. He explains soil problems in language the layman can understand, offers specific suggestions for improving them, and prescribes treatments in terms of well known kitchen measures. In the appendix he gives the soil preferences for some 450 selected plants--vegetables, small fruits, a few herbaceous perennials, a few shrubs, vines, ground covers, bulbs, and ferns.

New Projects

Improved methods and equipment for use on the farm to make rapid determinations of moisture in grains and seed are the object of a study recently initiated by the Farm Electrification Division. A Research and Marketing project, the work has been contracted to Michigan State and will be done by S.T. Dexter. New equipment developed by Dr. Dexter will be submitted to the Grain Branch of PMA for calibration. The possibilities of what may be done have been indicated by Beltsville studies with radio-frequency to measure moisture content of forage. Project leaders are T.E. Hienton (FE) and K.H. Norris (PMA).

W.V. Hukill and R.A. Saul (FB&RH) are leaders of a new line project to study pressures exerted by grain on storage building walls and floors, particularly the influence of structural members and sloping surfaces on grain pressure. They are using panel-mounted electric strain gages, which can be moved to key places, to measure the pressure in full size bins and buildings and to determine how much studs and cross ties relieve wall pressure. The work is being done at Ames, Iowa.

Resource Development

During the past 5 years Bureau scientists have worked with representatives of a number of Federal and State agencies in planning the resource development for large river basins and other geographic areas.

Evaluating these experiences recently in a talk before the National Soils and Fertilizer Research Committee, W.H. Allaway pointed out that the interagency approach has given soil scientists an unusual opportunity to review proposals of action agencies for large-scale construction. One immediate outcome has been to accelerate soil surveys and soil management research by both the USDA and the States in the Missouri Basin and to increase soil management research in the Columbia Basin and the Pacific Northwest.

A soil map prepared by Bureau soil correlators and workers from the State experiment stations and SCS is being used to appraise research and development needs in the Arkansas, White, and Red River Basins. A similar map is being drawn up for the New York-New England Area.

In a recent report to Congress the Missouri Basin USDA field committee proposed soil surveys for the Osage River Basin in Kansas and Missouri, the Blue River Basin in Nebraska and Kansas, the watershed of Five-Mile Creek in Wyoming, and for a million acres outside the critical sub-watersheds. In this last case, the surveys would be used in studying new areas for irrigation.

Jenkins on Leave With MSA

Merle T. Jenkins (CC&D), who has been closely associated with the hybrid corn program in Europe for the past 5 years, has accepted an assignment with the Mutual Security Agency to direct the program for the coming year. His headquarters are in the Food and Agriculture Division--MSA, Hotel Tallyrand, 2 Rue St Florentin, Paris 1, France. William R. Findley, associated with Dr. Jenkins in the corn breeding project at Plant Industry Station for the past 2 years, will be in charge of the office while Dr. Jenkins is away. A Kansan, Mr. Findley holds the BS and MS degrees from Kansas State. He served with the AAF in the South Pacific during World War II.

RETIREMENTS

George R. Boyd retired June 30 as head of the Division of Mechanical Processing of Farm Products. He entered the Department in 1908 as an agent in irrigation investigations for the Office of Experiment Stations. He served as assistant chief of the Bureau of Agricultural Engineering and later when the Bureau was abolished he was in charge of agricultural engineering research. He was the Department liaison officer during the days of WPA. For many years he was responsible for the design and construction of the Department's research buildings. Mr. Boyd is a native of Red Oak, Iowa, and a graduate in civil engineering from Iowa State College. He will continue to make his home at 301 Normandy Drive, Silver Spring, Md.

George J. Harrison, agronomist in charge of the U.S. Cotton Field Station, Shafter, Calif., retired June 30, after 32 years of service. Mr. Harrison was born in Jacksboro, Texas. He attended East Texas State College for two years and then transferred to the University of Tennessee. However, before he completed his studies, he entered the Army and served in the Signal Crops until the close of World War I. When he turned to cotton research, he was not qualified by training to hold a position as a scientist. He took a job as a laborer at the U.S. Cotton Field Station, Sacaton, Ariz., in September 1920. Within a year he met requirements for appointment as an assistant plant breeder. On the basis of outstanding work at Sacaton, he was placed in charge of the U.S. Cotton Field Station at Shafter.

In 1950 Mr. Harrison received a superior service award from the Secretary of Agriculture "For research which resulted in producing a superior cotton (Acala 4-42); for devising means of making the results of his research widely available to farmers; and for organizing a seed increase program which placed this cotton on 957,000 acres in California."

Mr. Harrison will continue to make his home in Shafter, where he will conduct plant breeding research for California Cotton Planting Seed Distributers, Inc. in collaboration with the Bureau at the Shafter Station.

Arnon L. Mehring, soils chemist in charge of the work on fertilizer and consumption trends, retired June 30 after 38 years of government service. A Pennsylvanian and a graduate of G. W. University, Mr. Mehring began his government career in the Post Office Department. He joined USDA in 1922. During World War II he served as consultant on fertilizers of the Office of Agricultural War Relations. He was named by the editors of CHEMICAL BULLETIN as one of the outstanding chemists in fertilizer chemistry. He is the author of more than 120 publications. Mr. Mehring will continue to make his home at 4510 Longfellow St. N.W.

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BPISAE on TV, August 3

A 30-minute program showing how Bureau research results in better fruits and vegetables will be telecast over Washington Station WTOP-TV, at 10:30 a.m., Sunday, August 3. The show will cover plant breeding investigations and the work in transportation and storage.

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James LeRoy Weimer, plant pathologist, retired from the Division of Forage Crops and Diseases, June 30, after more than 35 years of Federal service. Dr. Weimer was born in Indiana, did his undergraduate work at Wabash College, and received his PhD from Cornell.

During his first years with the Bureau he was stationed at Riverside, Calif., where he isolated and identified many diseases of alfalfa. He was the first to report the transmission of alfalfa diseases by insect vectors. Stationed at Experiment, Ga. since 1935, Dr. Weimer has been chiefly concerned with the diseases of winter legumes--the lupines, Austrian winter peas, and other cover crops.

DEATHS

Eugene C. Auchter, chief of the Bureau from 1938 to 1942, died July 8, in Honolulu where he was formerly president and director of the Pineapple Research Institute of Hawaii. A New Yorker, Dr. Auchter was educated at Cornell University.

His distinguished career in teaching, plant research, and administration began at the West Virginia Experiment Station in 1912. From there he went to the University of Maryland in 1918 as head of the Department of Horticulture. While there he trained many graduate students who are now research scientists in this Bureau. In 1928 he joined the Bureau of Plant Industry as principal horticulturist. His first responsibility was to organize the Division of Horticultural Crops and Diseases from various offices then concerned with research on fruits and vegetables. In 1935 he was made assistant chief of the Bureau and in 1938 was made chief.

When the Agricultural Research Administration was created in the Department, Dr. Auchter was appointed by Secretary Claude Wickard as the first administrator and was given the responsibility for its organization in 1942. He held this position until 1945 when he accepted the directorship of the Pineapple Research Institute of Hawaii.

During his tenure as chief of Bureau and later as administrator, he planned and developed research facilities in many lines of work. The administration buildings and laboratories of the Bureau were built at Beltsville, Maryland, as a part of the Agricultural Research Center. With funds provided under the Bankhead-Jones Act he developed projects in basic research at Beltsville and at three new Bureau laboratories--the Vegetable Breeding Laboratory at Charleston, S.C., the Salinity Laboratory at Riverside, Calif., and the Plant, Soil and Nutrition Laboratory at Ithaca, N.Y.

Dr. Auchter made numerous contributions to the basic sciences, particularly in plant nutrition, the influence of light and other environmental factors on plant growth, and to fruit breeding. He pioneered research on the influence of chemical sprays on fruit production. In addition to his work in the United States, he also studied agricultural conditions in Europe, Africa, and Latin America.